IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A dual loop feedforward power amplifier, comprising;

an input that provides a multicarrier signal;

a first feedforward power amplifier; ~~and~~

a second feedforward power amplifier; and

means for stabilizing the first and second feedforward power amplifiers using a single pilot signal,

wherein the first feedforward power amplifier serves as a main amplifier gain block in the second feedforward power amplifier,

wherein the first feedforward power amplifier comprises a carrier cancellation loop and a first error amplifier loop, and

wherein the second feedforward power amplifier comprises a third loop and a fourth loop that cancel small signal distortions that are not reduced by the first feedforward amplifier.

2. (Original) A dual loop feedforward power amplifier according to claim 1, wherein the carrier cancellation loop extracts an error signal representative of the error products produced by the main amplifier and generates an output comprising an error signal representative of the distortion produced in a main amplifier.

3. (Original) A dual loop feedforward power amplifier according to claim 2, wherein the third loop includes a gain and phase adjustment circuit that cancels the multicarrier signal present at the output of the first feedforward power amplifier (being used as a main amplifier).

4. (Original) A dual loop feedforward power amplifier according to claim 1, wherein the first error amplifier loop includes an error amplifier, wherein output of the error amplifier is stabilized by applying automated phase control and automatic gain control to the error amplifier.

5. (Original) A dual loop feedforward power amplifier according to claim 4, wherein the error amplifier allows constant gain and phase characteristics of the dual loop feedforward power amplifier to be provided without monitoring output of the dual loop feedforward power amplifier.

6. (Original) A dual loop feedforward power amplifier according to claim 1, wherein the dual loop feedforward power amplifier has a cancellation of 45 to 50 dB.

7. (Original) A dual loop feedforward power amplifier according to claim 1, wherein first error amplifier loop functions independently of other loops of said dual loop feedforward power amplifier.

8. (Original) A dual loop feedforward power amplifier according to claim 1, wherein the first error amplifier loop comprises:

a first path that receives the amplifier output signal, wherein the first path is disposed after main amplifier and through an output coupler;

a first injection coupler;

a second path through the phase and gain adjusting circuit;

a third path through the first error amplifier; and

a second injection coupler, wherein re-injection occurs at the second injection coupler.

9. (Original) A dual loop feedforward power amplifier according to claim 8, further comprising:

a delay line disposed between the first and second injection couplers, the delay line having an output; and

a third injection coupler coupled to the output of the delay line,

wherein the amplifier output signal is reduced each time the amplifier output signal passes through the injection coupler and the delay line.

10. (Original) A dual loop feedforward power amplifier according to claim 1, wherein the output of main amplifier module is coupled to a delay filter and is sampled to generate a sampled output.

11. (Original) A dual loop feedforward power amplifier according to claim 10, wherein the sampled output is coupled to a coupled port of a second coupler to generate a secondary signal.

12. (Currently Amended) A dual loop feedforward power amplifier according to claim 1, wherein an error signal is produced by subtracting an attenuated copy of the main amplifier signal from a delayed copy of the input signal present at the output of ~~the~~ a gain and phase adjusting circuit.

13. (Cancelled)

14. (Currently Amended) A dual loop feedforward power amplifier according to claim 1, wherein the means for stabilizing ~~an error amplifier as a~~ the first and second feedforward power amplifiers, comprises:

means for generating ~~a~~ said single pilot signal;

a first error amplifier loop that includes a first coupler and an error amplifier having an input and an output, wherein the first error amplifier loop utilizes the pilot signal to stabilize gain and phase of the error amplifier;

a delay line; and

~~the~~ an outermost loop.

15. (Original) A dual loop feedforward power amplifier according to claim 14, wherein the outermost loop comprises:

means for monitoring the error amplifier performance by measuring spectral purity at the output of the error amplifier using a second coupler to stabilize the error amplifier;

means for comparing phase and amplitude of the pilot tone at the input of the error amplifier to another phase and another amplitude of the pilot tone at the output of the error amplifier to thereby provide a comparison result; and

means for adjusting phase and amplitude of the error amplifier, based on the comparison result, to thereby achieve electronic stabilization of the error amplifier.

16. (Original) A dual loop feedforward power amplifier according to claim 15, wherein the second coupler receives a first signal at a first port, induces a second signal at a forward coupled port, and passes the second signal to a termination port, wherein the magnitude of the second signal is less than the magnitude of the first signal.

17. (Original) A dual loop feedforward power amplifier according to claim 16, wherein the means for comparing phase and amplitude of the pilot tone, comprises:

means for monitoring power dissipation in the termination port, wherein power dissipation in the termination port is indicative of the degree of cancellation provided by the feedforward amplifier.

18. (Original) A dual loop feedforward power amplifier according to claim 16, wherein the means for means for adjusting phase and amplitude of the error amplifier, comprises:

means for adjusting phase and gain of the signal input to the main amplifier by controlling amplitude and phase adjustments based on power dissipation measured in the termination port until the dissipation in the termination port is minimized.

19. (Original) A dual loop feedforward power amplifier according to claim 18, wherein the second signal is dissipated as heat in a resistive load, if the phase of the first and second signal are anything other than substantially 180 degrees apart.

20. (Original) A dual loop feedforward power amplifier according to claim 18, wherein the first and second signals cancel out if an error amplifier coupled to the forward coupled port of the coupler produces a second signal having polarity opposite the first signal, such that approximately no power is dissipated in the termination.

21. (Original) A dual loop feedforward power amplifier according to claim 15, wherein the outermost loop further comprises:

a pilot sampling coupler having an output coupled to a forward port of an injection coupler in the main amplifier path and a forward port;

a first error amplifier coupler disposed at an input of the error amplifier, wherein the first error amplifier coupler has an input coupled to a forward coupled port of a signal

splitter, an output port, and a forward coupled port coupled to the means for generating a pilot signal;

wherein the input of the error amplifier is adapted to receive the pilot tone from the means for generating a pilot signal, and

wherein the error amplifier generates an amplified pilot signal that is coupled to the pilot sampling coupler, and

wherein the output port of the first error amplifier coupler is coupled to the error amplifier.

22. (Original) A dual loop feedforward power amplifier according to claim 15, wherein the means for comparing phase and amplitude of the pilot tone, comprises:

a processor that compares the phase and gain of the amplified pilot signal to the phase and gain of the input pilot signal to generate comparison result information, wherein comparison result information is used to generate phase and gain control signals.

23. (Original) A dual loop feedforward power amplifier according to claim 15, means for adjusting phase and amplitude of the error amplifier, comprises:

an I-Q demodulator that provides control signals to continuously adjust the error amplifier performance such that the error amplifier (performs to a preset condition) that will yield a desired performance at the output of the loop.

24. (Original) A dual loop feedforward power amplifier according to claim 23, wherein the I-Q demonstrator comprises:

a first demodulator input coupled to the forward port of the pilot sampling coupler;

a second demodulator input coupled to the output of the means for generating a pilot signal;

a first demodulator output coupled to a phase and gain control circuit for the error amplifier; and

a second demodulator output coupled to the phase and gain control circuit for the error amplifier.